

MASS SPECTROMETERS DESIGNED FOR CHEMISTS

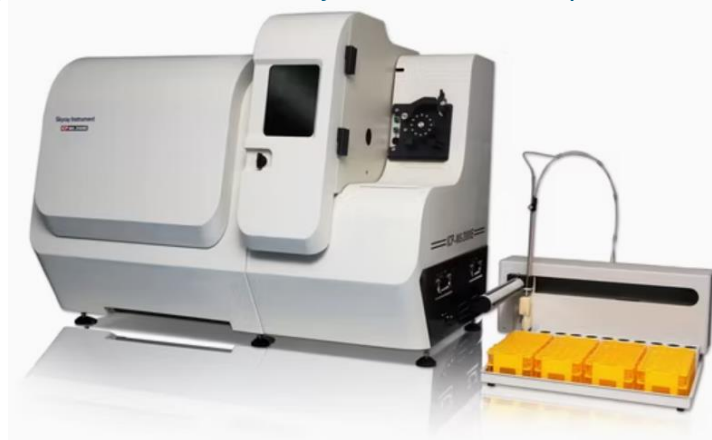


The Aeromet II represents a state-of-the-art analytical platform engineered for high-performance mass spectrometry applications. This compact yet highly sensitive tandem quadrupole system integrates advanced ion optics and acquisition technologies to deliver robust quantitative and qualitative analysis across a broad spectrum of analytes.

Aeromet II Tandem Quadrupole Mass Spectrometer Features

Fast Tag Technology: The incorporation of proprietary fast tag ionization and detection mechanisms significantly enhances the instrument's ability to detect trace-level analytes within complex biological, environmental, or pharmaceutical matrices. This technology supports low-volume sample injections while maintaining high fidelity in signal acquisition, thereby ensuring reproducibility and precision in quantitation. Upgrading to a mass spectrometry (MS) system is a practical and effective way to enhance the capabilities of an existing gas chromatograph (GC).

Dynamic Range Optimization: The Aeromet II is equipped with Dynamic Range technology that extends the linear response range of the detector. This enables accurate quantification of both low-abundance and high-concentration species within a single analytical run, facilitating seamless method transfer and reducing the need for sample dilution or concentration.



High-Speed Acquisition: The Aeromet II system supports elevated scan rates and rapid polarity switching, allowing for the simultaneous monitoring of multiple transitions with minimal cycle time. This capability is particularly advantageous in high-throughput workflows such as pharmacokinetic profiling, metabolomics, and targeted proteomics.

Reproducibility and Quantitative Confidence: The instrument's precision-engineered quadrupole filters and collision cell dynamics ensure consistent fragmentation patterns and transition reproducibility, which are critical for confident quantitation in regulated environments.

Enhanced Method Development: The intuitive Spera software environment supports real-time data visualization, automated peak integration, and customizable acquisition protocols. These features accelerate the optimization of analytical methods and improve the interpretability of complex datasets.

Instrument Specifications

Dual-orthogonal API sources: Yes

Mass analyzer: Quadrupole analysers (MS1/MS2)

Collision cell: MS/MS performance at high data acquisition rates

Ionization Sources modes: Multi-mode source – ESI & APCI, ESI Single Source, APCI Single Source

Flow Rate: flow rates up to 3 mL/min

Acquisition modes: Multiple reaction monitoring (MRM), Product ion scan, Precursor ion scan, Constant neutral loss, Full scan MS

Scan speed: Up to 22,000 Da/s

ESI and APCI source Flow rate range: 3.0 mL/ min

Mass Range (AMU): 2 to 2000 m/z

Mass Stability: <0.1 Da over a 24 hour period

Polarity Switching time: 5 ms to switch between positive and negative ion modes

Desolvation Temperature: 700°C for both ESI and APCI Modes

Dwell and Delay Time: Less than 0.5 ms

(ESI+) MRM sensitivity: A 1 pg on-column injection of reserpine produces a signal-to-noise ratio exceeding 700,000:1 (LC flow rate 0.5 mL/min, MRM 609 > 195 m/z). The instrument detection limit (IDL), based on 10 replicate injections, is <2.0 fg reserpine.

(ESI-) MRM sensitivity: A 1 pg on-column injection of chloramphenicol produces a signal-to-noise ratio exceeding 700,000:1 (LC flow rate 0.5 mL/min, MRM 609 > 195 m/z). The instrument detection limit (IDL), based on 10 replicate injections, is <2.0 fg chloramphenicol.

MS to MS/MS switching time: 3 ms

Mass Resolution: Auto adjust (0.50 Da, 0.75 Da or 1.00 Da FWHM)

Number of MRM channels: 32,000 MRM channels

Acquisition Scan Modes: MS scanning

Product ion scanning

Multiple reaction monitoring

Selected ion monitoring/recording (SIM/SIR)

Precursor ion scanning

Neutral loss/gain scanning

Advanced scan modes

Collision Cell: Q2/MS2/CID

Dynamic Range: 6 order

Detector: EMT Detector with 10 year guarantee

Integrated Auto-Tuning/Calibration device: Yes

Data Management System: Spera Software

MRM acquisition rate: 555 MRM

Vacuum system: One automated vacuum pump

Spera Software Interface: The Aeromet II is seamlessly integrated with the Spera analytical software suite, which enables dynamic switching between full scan MS and targeted MS/MS acquisition modes. This flexibility empowers analysts to simultaneously explore sample complexity and refine targeted quantitation strategies during method development.

MODULAR NEXALAB™ CHROMALYTE (U)HPLC

PRODUCT NOTE

The Chromalyte Fast Liquid Chromatography System is engineered for high-performance separation and versatile solvent blending, making it an excellent choice for routine testing, advanced research, and method development. Optimized for rapid liquid chromatography workflows, it delivers exceptional resolution and sensitivity.

Key Features:

- Equipped with a quaternary pump and online degasser for precise solvent management
- Incorporates a high-accuracy injector for consistent sample delivery
- Compatible with a wide range of detectors, including:
 - UV
 - Photodiode Array (PDA)
 - Refractive Index (RI)
 - Evaporative Light Scattering (ELSD)
 - Fluorescence (FLR).

Supports high-pressure operations and columns with particle sizes down to 1.7 microns. Seamlessly integrates with mass spectrometry systems, ensuring robust and reliable analytical results

- *The Atmospheric Solids Analysis Probe (ASAP®) for direct analysis of solids, liquids, and even air-sensitive samples*
- *Volatile APCI (vAPCI) for analysis of volatile organic compounds (VOCs) from head spaces, breath, and other gas samples*
- *Flow chemistry interfaces All of these techniques can be simply, simultaneously, interfaced with the MS so that chemists can move quickly and effortlessly between workflows.*

NEXA LAB

Modular SERIES



FLOW SYSTEM

Flow Rate Range: 0.001 – 2.0 mL/min

Operating Pressure: Up to 15,000 psi

pH Range: 1 – 12

Quantum Synchronization: Ensures reproducible retention times

Gradient Delay Volume: $\leq 300 \mu\text{L}$

Cycle Time: ≤ 20 sec (inject-to-inject)

Leak Detection: Integrated sensors

Dwell Volume: $\leq 320 \mu\text{L}$

SOLVENT SYSTEM

Solvent Capacity: Up to 4 solvents

Degassing: Automated vacuum system

Gradient Type: Quaternary, low-pressure mixing

Predefined Gradients: 16 curves

Priming & Seal Wash: Automated

Flow Precision: $\leq 0.070\%$ RSD

Composition Accuracy: $\pm 0.25\%$

AUTOSAMPLER

Injection Volume Range: 0.1 – 50.0 μL

Injection Accuracy: $\pm 0.1 \mu\text{L}$

Injection Precision: $\leq 1\%$ RSD

Carryover: $\leq 0.002\%$

Sample Plates: 96/384 microtiter or 48-position vial plates

Sample Temp. Range: 4.0 – 40.0 $^{\circ}\text{C}$ ($\pm 0.5^{\circ}\text{C}$ accuracy)

COLUMN COMPARTMENT

Column Capacity: 2 columns

Temperature Range: 4.0 – 100.0 $^{\circ}\text{C}$ ($\pm 0.1^{\circ}\text{C}$ accuracy)

Active Solvent Pre-heating

Column Record System

SAMPLE ORGANIZER

Temperature Range: 4.0 – 40.0 $^{\circ}\text{C}$ ($\pm 1.0^{\circ}\text{C}$ accuracy)

CONTROL

Software: Pseudo Labs Software Compatible

User-friendly interface for method control

PDA DETECTOR:

Wavelength Accuracy: $\pm 1\text{nm}$ or better

No of diodes: 512 diodes

Cell volume: $> 9\mu\text{L}$ or better

Wavelength Range: 190-800nm

Range: 0.0001 to 2,000 AU

Source: Single Deuterium lamp for full wavelength

Baseline Noise: $\leq 10 \times 10^{-6}$ or less

Sampling Rate: 80Hz

